Perceived delay in health seeking behaviour of rural population in Odisha.

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Abstract:

Because of unacceptably high morbidity and mortality, malnutrition, low standard of living conditions, short life expectancy, and poor utilization of health care systems, health remains a crucial factor in recent years, with a growing recognition that a country suffers as a result of an unacceptably high burden of illness, premature mortality, and public ignorance. Delays in receiving adequate care for sufferings can be life threatening and have been associated with limited education and their difficulties in recognizing the severity of the illness. Long waits for healthcare have been found to reduce patient satisfaction and lead to an inefficient healthcare system by increasing the usage of emergency and urgent need. The present study explores delays in health seeking behaviour in accessing proper care for sufferings, which result in delays in diagnosis and treatment, and these delays are hypothesised to have an adverse effect on individual health and impose a significant financial burden. Access to preventative treatment improves health outcomes; however, little research has been conducted in this subject to evaluate the empirical relationship between how long patients wait for outpatient care and their health outcomes. Estimates of how long people wait for healthcare are mostly based on self-reported data. Chi-squared distribution has simply done in order to get the difference between zero delayed patient and high delayed patient. Logistic regression model used to determine the factors associated with delayed patients.

Keywords: morbidity, mortality Odisha, Inpatient, Outpatient, Health Expenditure, Health insurance.

Introduction:

"Health is a complete state of physical, mental, and social well-being, not simply the absence of disease or infirmity." In general, health has several multi-faced aspects. According to the **Mukherjee** (1986), health is not only the result of interaction between an individual's hereditary contribution with his natural and cultural environment. However, it is mainly determined by the biological and cultural adaptation and evolution of the society and the population residing there. Diseases and illness are one of the fundamental problems faced by every human society; however, people whose are living in rural areas where health care, and developmental services do not reach to the needy people. Therefore, it is an urgent need to understand their concept of health, their concern for ensuring their traditional knowledge, their custom, and various religious activities with attitudes regarding modern health care practices. Health and diseases are the continuous process and are linked to the health-seeking behaviours of any community and health seeking is an important factor in health

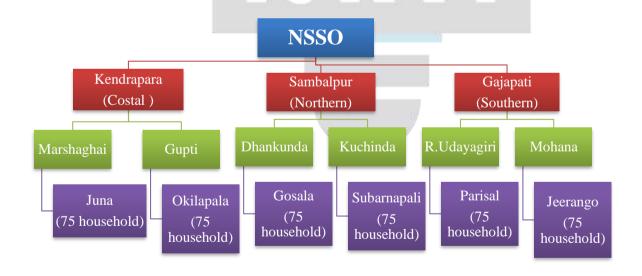
management, but in India, where most of the health schemes are centralized, this is often ignored while considering providing health facilities to the people. Health care seeking behaviour has been defined as "any action or inaction undertaken by individuals who perceive them to have a health problem or to be ill for the purpose of finding an appropriate remedy (Ward et al.1996). It is initiated with symptom definition, whereupon a strategy for treatment action is devised (Christakis 1994). Delays in receiving adequate care for sufferings can be life threatening and it exist mostly in rural areas. It is condemned by medical professionals and laymen alike. Public and private health agencies use the ever-increasing parade of cured patients as one measure for evaluating the effectiveness of their educational programs urging early diagnosis and treatment. Increased mortality from illness has an effect of increase deaths and a population living long enough to die. Time, energy, and money are expended, rightfully, to determine the disease severity and to improve the prognosis of specific illnesses, and one result is an increase in negative judgment levelled at delay in seeking medical care in some instances and the ignoring of it in others.

Literature review:

In order to provide a background of delay in health seeking behaviour and the factors affecting delay in utilizing health services, in this section an attempt has been made here in order to piece together various studies conducted in the past, which helps to identify the gaps that exist in literature. Socioeconomic status plays an important role in delay in seeking medical care. Kutner and Gordon (1961) examined both sex and socioeconomic status as factors related to delay in health seeking behaviour. They found greater frequency of reporting cancer symptoms among women respondents than man, but no sex difference in seeking medical care. Ross (1962) relating social class to medical care, found a sex difference in the frequency of visits to the physician when he separated them by age. Women in the upper income and education group paid more visits to the physician between 25 and 34 and over 65 years of age, but women are visiting the physician for obstetrical care. Titchener et al (1956) in studying factors in delay in seeking surgical care also found no sex difference for delayers or non-delayers in either the cancer or non-cancer group. However, they also found no correlation between delay and age or intelligence, frequently implicated as significant variables in delay. Youngman (1947) examined 50 patients at an institute for radium treatment and found that increased age was a definite factor in delay in seeking treatment. Cobb et al (1954) also characterized the delaying patient as older, of low educational status, avoid physicians, have faith in divine healing, and have insufficient money. Not only socioeconomic status but also length of delay also matters a lot. Miller and Henderson (1946) combined patientphysician delay demonstrated a spectacular change in length of delay across time for cancer of the corpus. Both patient delay and physician delay were more than halved, while total delay also decreased by half. Gray and Ward (1952) found 35 percent of the cases of stomach cancer in their study had been delayed by their physicians from 3 to over 24 months before treatment, and that average physician delay of 6.4 months nearly equalled the average patient delay of 7.8 months. Boyce (1953) found 24 percent of his stomach cancer patients experiencing delay in 10 diagnoses and treatment after being hospitalized **Kutner and Gordon (1961)** also found a slight negative relation between educational level and delay in seeking medical care for both general medical and cancer symptoms. They went on to say that those possessing the least knowledge of cancer tended to procrastinate the most, but that some knowledge about cancer, e.g., the danger signals, coupled with medium to low educational level increased the delay. In the light of the various literature review

related to several dimensions of delay in health seeking behaviour but there are no such studies are related to categorical analysis of delay (zero delay, moderate delay and high delay) in health seeking behaviour especially in case of Odisha. The proposed study attempts to examine what are the difference between moderate delay and high delay with the relation to income and education. Along with what are the factors determining delay or the root cause of delay in health seeking behaviour especially in case of rural Odisha? The proposed study will be based on the hypothesis that Socio economic characteristics of the household have no bearing on the delay in health seeking behaviour of the respondents.

Sampling Design: As the morbidity is influenced by the climate, the data are taken from varied climatic regions. There are three NSSO regions in Odisha: Coastal, Northern and Southern. From each region one district is chosen using multi stage random sampling. Assuming that rural areas lag behind the urban areas in all types of facilities, the study considers taking up in the cases of rural areas. From each district villages are categorised as near to district main head quarter and remote block from district head quarter. Assuming that development status of the near block will provide the scope for good/inferior healthcare facility, from each category of blocks, one block is chosen using SRS. From each block, by listing the villages, one is selected again using the SRS. From each village, 75 households are selected again using SRS. By this the total sample households become 450. Considering the total number of rural households of Odisha, i.e. 86, 77,615 in 2011, this constitutes approximately 0.005%. However, using the Krejcie & Morgan (1970) this number is found to be quite acceptable. Care has been taken to select households of all categories and of religions. The sampling design is presented in Figure -1.



Data source and methodology:

This study is based on the primary survey conducted in July to September 2021(in rainy season) in three districts of Odisha, such as Kendrapara, Sambalpur and Gajapati. The survey conducted 450 household, from each district 150 household selected on the basis of multi stage random sampling, which consists of 1915 individuals in all age groups. In this paper an analysis has done in order to identify the morbidity rate among all persons in the household during the reference period (fifteen days before the survey date). It is likely that respondent knowledge and perception of sickness influence the quality of morbidity statistics. Here we are following the Andersen-Aday model of health care utilization which was used to examine health care

preferences, perceptions and socio-cultural barriers that Influence delay in health care seeking among rural Odisha.

Table-1 Village wise distribution of patients in three districts of Odisha

Districts	Villages	Patients	Total individuals
Kendrapara	Juna	187(62.54)	299(100.00)
	Okilapala	159(56.98)	279(100.00)
	Total	346(59.86)	578(100.00)
Sambalpur	Jharmunda	209(62.38)	335(100.00)
	Subarnapali	268(68.71)	390(100.00)
	Total	477(65.79)	725(100.00)
Gajapati	Parisal	198(70.46)	281(100.00)
	Jeerango	257(77.64)	331(100.00)
	Total	455(74.34)	612(100.00)
Total		1278(66.78)	1915(100.00)

Source: Field Survey, July-September 2023

Note: 1. Some of the persons is found in patient categories.

2. Figures in the bracket are in percentage

The above table No-1 explain about the village wise distribution of patient of three districts of Odisha. Gajapati is the districts which have highest patients (66.78) of Odisha followed by Sambalpur (65.79) and Kendrapara (59.86). In case of village wise distribution Chandragiri (77.64) a village of Gajapati district remains in the top in the morbidity rate followed by Parisal village (70.46). In overall figure draws that the total Percentage of population suffered in last 15 days=1275/1915*100=66.57, which is quite high.

Delays in receiving adequate care for sufferings can be life threatening and have been associated with limited education and their difficulties in recognizing the severity of the illness. Long waits for healthcare have been found to negatively impact patient satisfaction and contribute to an inefficient healthcare system by increasing the use of the emergency and urgent need for health care. It will result in delays in diagnosis and treatment, and these delays are hypothesized to negatively affect individual health and make a more burden on expenditure. Timely access to care affects health outcomes, in this article a little research has actually examined the empirical association between how long patients wait for outpatient care and their effect on health outcomes. Here the estimation of how long individuals wait for health care are largely based on self-reported data

This delay has been well-described as consisting of three levels: delay in making decision to seek care, delay in arrival at a health facility, and delay in receiving adequate treatment, which have been named first, second, and third¹ In below table no- 3 we explain the expected time delay of a patient after suffering from a disease. This table totally based on the assumption that a patient can be delay some hours to make decision to seek care, after suffering from a disease. But after that it will become necessary for his/her to make treatment. In the study area there are 1243 patients who are sick in last 15 days among them 1132 patient delayed their treatment.

¹Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med 1994;56:1091-109

In the below diagram we assumed that the time of delay that a patient takes. Here we divide the delay time in to three groups. First no delay, where delay in making decision to seek care, here a patient takes time to decide a symptom as a sign of illness, second is moderate delay where a patient decides to seek professional medical care and delay in arrival at the health care facility, in third its high delay where the patient delay in receiving adequate treatment regarding health care professional or any health care utilization delay. Suppose we explain a case of typhoid disease we consider the patient where the test report is obtained. Almost the typhoid disease patient delays their treatment because the symptoms of typhoid fever usually develop 1 or 2 weeks after a person becomes infected with the Salmonella type bacteria. With treatment, the symptoms of typhoid fever should quickly improve within 3 to 5 days. In the first stage the patient experiences some of the preliminary typhoid symptoms such as dry cough, indolence or headache. This may or may not be accompanied with fever. Even if fever occurs, your body temperature will not be much higher than normal. In The Second Stage fever runs high and the stomach becomes bloated. In Third Stage the person may become dehydrated which increases the intensity of the delirium. In fourth stage there is extremely high fever. It brings along several other health complications including severe infections, kidney failure, People usually go to test typhoid in the third/fourth stage, after the recommendation of doctor, then with their test report go to doctor after that again take appointment of the doctor. So, in this process there are a heavy delay occurred with every typhoid patient. However, in rural Odisha a little research has been done to use the three-delay model to improve access to health services because its facets are complex and inter-related and involve various factors, particularly those relating to promptness in making final decisions to seek care.

Diseases name	Time considered as					
	No delay	Moderate Delay	High Delay			
1.Typhoid*	24 hours	<48 hours	>48 hours			
2.Dental, Eye, Ear	24 hours	<48 hours	>48 hours			
3.Cold and Cough	24 hours	<48 hours	>48 hours			
4.Gynological	24 hours	<48 hours	>48 hours			
5.Accident and Injury	1 hours	2 hours	Above 2 hours			
6.Dycentery	5 Hours	10 hours	Above 10 hours			
7.Fever	6hours	12 hours	Above 10 hours			

In table no-03 we explain the disease wise delayed patients list. Where we see that among 1243 patient 93.95 patients are high delayed patient. In case of fever (94.5) and typhoid disease people make a heavy delay. And only 58.5 percent gyno logical patient make a low delay.

Table-3 Disease wise delayed patients in Odisha.

Diseases name	Total	No delay	Moderate	High Delay	Total Delayed
	patients		Delay		patients
1.Typhoid	80	2(2.5)	5(6.2)	73(91.2)	80
2.Dental, Eye,	47	17(36.2)	1(2.1)	29(61.7)	30
Ear					
3.Coldand Cough	465	55(11.8)	17(3.7)	393(84.5)	406

4.Gynological	65	18(27.7)	9(13.8)	38(58.5)	65
5.Accident And	102	1(1.0)	15(14.7)	86(84.3)	49
Injury					
6.Dycentery	141	2(1.2)	28(16.2)	143(82.7)	169
7.Fever	343	9(2.6)	10(2.9)	324(94.5)	333
Total	1243	104(9.18)	85(7.50)	1086(95.93)	1132

Source: Field Survey, July-September 2021

Below table no-4 explain about the average duration of a patient delayed. The duration of delay is measured in terms of days, where the patient of Gajapati district takes delayed more days than two other districts. The duration of delay is more in case of female than male. In second explain about the average duration of diseases per patient takes.

Table no-4 Average duration of delay (in days)

1	Average duration of delay per patients			Average duration of diseases per		
				patient		
	Female	Male	Total	Male	Female	Total
Kendrapara	4.20	3.96	4.67	3.89	3.92	3.90
Sambalpur	5.72	5.30	5.38	5.28	5.07	5.18
Gajapati	6.74	6.01	5.39	5.98	6.13	6.06
Total	5.65	5.20	5.43	5.16	5.12	5.14

Source: Field Survey, August 2021

During the study 450 household were enrolled. Here total population size is 1918. There is 1243 patient among them 1132 delayed their treatment. We divided the delayed patient in to three groups, first no delay (level-1), moderate delay (level-2), and high delay (level-3). Here we analysis the socio-economic characteristics of delayed patients. female (52.9) delayed more than male(47.1), most of them are married (56.7) and agricultural labour (28.8) and their education status is below matric level(31.7). most of them are under the age group of 30-39 (29.8) in case of level -2 patients female (51.8) are more than male (48.2). most of them are married (70.6) and educational status is below 12 th level (29.4) and most of them are private service holder(29.4) in the age group of 40-49 (30.6). in third level male(52.4) are more sufferer than female members(47.6) due to more facilities are found in hospital i.e separate line for female where their numbers are low that's why delayed patients are low than male person. Most of them are married, (64.6) below gradation level (30.2) and most of them are private sector employees (31.4) in the age group of 20-29 (29.2).

Table-5 Disease wise and gender wise delay (in days) of patient

Diseases	Delay in				Male			Female	
name	days	No	%	Delay	No	%	Delay	No	%
Typhoid	0	0	0	0	0	0	0	0	0
	2	1	1.2	2	0	0	2	1	2.3
	4	43	53.8	4	22	61.9	4	21	47.7
	7	36	45	7	14	38.9	7	22	50
	Total	80		Total			Total		
Dental,	0	17	36.2	0	4	22.2	0		
Eye,	2	1	2.1	2	1	5.6	2	13	44.8
Ear	4	29	61.7	4	13	72.2	4	16	55.2
	Total	47		Total			Total		
Cough Cold	0	59	12.7	0	27	11.2	0	32	14.3
	4	156	33.5	4	85	35.3	4	71	31.7

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	5	240	51.6	5	125	51.9	5	115	51.3
	8	10	2.2	8	4	1.7	8	6	2.7
	Total	465		Total	241		Total	224	
Gyno	0	0	0	0	0	0	0	0	0
logical	2	27	41.5	0	16	41.9	0	11	42.3
	7	38	58.5	7	23	59	7	15	57.7
	Total	65		Total	39		Total	26	
Accident	0	53	52.7	0	24	51.1	4	29	53
	4	1	1	4		100	<u> </u>	1	1
	7	48	47.1	7	43	48.9	7	25	46.3
	Total	102		Total	47		Total	55	
Decently	0	2	1.2	0	1	1.2	0	1	1.1
1	2	7	4	3	2	2.3	3	5	5.7
l l	3	93	53.8	4	49	57	4	44	50.6
1	4	71	41	6	34	39.5	6	37	42.5
W.	Total	171	1	Total	86		Total	87	
Fever	0	10	2.9	2	5	2.6	2	5	3.3
1	2	129	37.6	4	74	38.5	4	55	36.4
,	3	204	59.5	7	113	58.9	7	91	60.3
	Total	343		Total	192		Total	7	

Reason of delay: when patient reported delayed their treatment then they were asked for the reason of delay at that time the most frequent answer was medical aid was expensive they think that and also in real situation the medical treatment process, doctors' fees, medicine cost and diagnosis cost was expensive due to that reason most of the people hesitated to take medical care. This happened most in Gajapati district. In second reason most of the people consider the disease as a minor complain it do not call for health professional. But when it becomes more severe or incapable our body at that time people go to hospital. In case of third reason most of the patient and their relatives can't find time of leave from work, this will be happened mostly in the case of women and children. As they depend upon their husband. In the fourth case people does not want to miss a day wage due to poverty in most of the rural family's people hesitate not to lose a day of wage.

Table-6 Reason of delay in the study area

	Kendrapara	Sambalpur	Gajapati	Total
Medical Aid Is Expensive	52.7	52.3	52.8	52.6
Minor Complain Do Not Call for	18.3	9.8	15.3	14.3
Professional Assistance				
Can't Find Time of Leave From work	14.5	3.3	3.2	6.7
Will Miss A Days Wage	14.5	34.6	28.7	26.6
Total	100	100	100	100

Source: Field Survey, August 2023

Delays in receiving adequate care for sufferings can be life threatening and have been associated with limited education and their difficulties in recognizing the severity of the illness. Long waits for healthcare have been found to negatively impact patient satisfaction and contribute to an inefficient healthcare system by increasing the use of the emergency and urgent need for health care. It will result in delays in diagnosis and treatment, and these delays are hypothesized to negatively affect individual health and make a more burden on expenditure.

Timely access to care affects health outcomes, in this article a little research has actually examined the empirical association between how long patients wait for outpatient care and their health outcomes. Estimates of how long individuals wait for healthcare are largely based on self-reported data.

Table no-07 Disease wise distribution of delayed patients among three districts of Odisha

	Zero Delay		Moderate I	Delay	High Delay	
Disease Name	Mean Of	Mean Of	Mean Of	Mean Of	Mean Of	Mean Of
	Total	Mean	Total	Mean	Total	Mean
	Income	Education	Income	Education	Income	Education
Typhoid	144000	10.3	135920	6.65	98643.83	8.46
Dental, Eye, Ear	68588.23	7.8	130000	2.75	112517.24	9.61
Cold Cough	81185.45	7.8	140117.6	8.16	105561.83	8.56
Gynological	151188.88	8.3	108000	6.74	77026.31	8.08
Accident	73000	6.5	139200	7.28	99276.74	8.03
Decentry	63000	7.3	105114.3	7.83	99048.95	7.81
Fever	102622.22	6.8	134320	4.40	100564.81	8.55

Source: Authors Estimation from Field Survey, August 2023

Result discussion:

In below we explain X² test in order to explain about the difference between moderate delayed patients mean of total income and high delayed patients mean of total income.

Table-08 Factors associated with high delay in health seeking behaviour of rural population:

Independent	Catagory	Odds ratio	Std. err.	P value	95% conf. Interval		
variable	Category		Sta. err.	P value	95% CONT. I	ıntervai	
Sex	Female ®	1 %		- 10			
	Male	0.557	0.059	0.000	0.452	0.687	
Age group	0-15®	1					
	16-30	2.742	0.423	0.000	2.027	3.709	
	31-45	3.963	0.522	0.000	3.062	5.129	
	46-60	9.669	2.438	0.000	5.898	15.850	
	61+	12.464	3.549	0.000	7.133	21.777	
Income of	20400-55920 [®]	1					
the HHs	55921-111840	0.790	0.113	0.099	0.596	1.045	
	111841-167760	1.889	0.285	0.000	1.406	2.538	
	167761-223680	1.317	0.269	0.177	0.883	1.965	
	223681-300000	2.835	0.884	0.001	1.539	5.225	
Educational	illiterate ®	1					
status	literate	0.629	0.090	0.001	0.476	0.832	
Household	Nuclear	1					
type	Joint	1.594	0.173	0.000	1.289	1.973	
Financial	No	1					
problem	Yes	2.054	0.249	0.000	1.620	2.605	
Distance to	Long	1					
health care	Near to house	0.546	0.065	0.000	0.432	0.691	
Knowledge	Poor	1					
	Good	0.682	0.078	0.001	0.545	0.852	
Constant		1.042	0.214	0.843	0.696	1.559	
Log likelihood			-1	088.86			
LR chi2			3	882.82			

Prob> chi2	0.000
N	1915
	Data Source: Computed by Author

[®] Reference period

In this case (table no-08), the reference category has an odds ratio of one. The link between the combinations of independent variable and dependent variables is based on the statistical significance of logistic regression model. The model's likelihood chi-square (382.82) with the P value was 0.000 tells that our model is fit significantly. The null hypothesis (no difference between the models without independent variables) has been rejected, and the link between the dependent variable and the independent variables was verified. Here delay in health seeking is affected by individual and household characteristics such as sex, age, income of the family, educational level, household type, any financial problem, and distance from home to health care, knowledge regarding disease which occurs delay. Table 09 illustrates the results of multivariate logistic regression models to examine the factors associated with delay in treatment-seeking behaviour for in rural Odisha. The analysis revealed that male person were lesser odds of delay in treatment-seeking (OR: 0.557, 95% CI: 0.452-0.687) compared to female population. Here we take female group as the reference category. If we analysis age group structure then we found that as age group increases odd ratio increases and in the age group of 60 + and above population have (OR: 12.46, 95% CI: 7.133-21.777) .In case of households income are also affected to delay as high income group person(OR:2.835,95% CI:1.539-5.225) delay more than lower income group population(as this group of population were taken as reference group=1), as they are busy in work so more delay happens to these group population. if we analysis the educational status of the individual we categorized in to two groups i.e. literate and illiterate and found that literate people are doing less delay than illiterate people with (OR:0.629 95% CI:0.476-0.832). Joint family (OR:1.594 95% CI:1.289-1.973) doing more delay than nuclear family. Financial problem is a major factor that affect delay in health seeking behaviour. Those who have problem regarding finance delay more (OR: 2.054 95% CI: 1.620-2.605) than those who have not. Distance to the health facility is also strongly associated with delay in seeking treatment (OR: 0.546 95% CI 0.432-0.691) where caregivers reported distance to a health facility was a 'big problem'. In case of knowledge regarding diseases those have good knowledge have less delay (OR: 0.682: 95%CI 0.542-0.852) than those who have not. Our finding supports the study which states that delay in health seeking is high among the 60+ population and those having financial problem. in case of rural Odisha.

Conclusion:

Our study revealed a high prevalence of delay in health seeking is associated with various socio-economic factors such as the age, sex, place of residence, income of the household, place of treatment and education of household head and distance to the health facility. So, it's better to know common symptom of illness, seeking early treatment would increase the chances of disease detection at the initial stage which may eventually help to stop the progression and severity of the illness. The policymakers should pay attention to formulate effective intervention to sensitize caregivers on the importance of early health seeking behaviour. Community awareness program should be encouraged particularly in rural areas to make people aware of the necessity to take prompt action to seek care in the early stage. Appropriate health-seeking behaviour was found to be high among

educated person. However, rural people with lower levels of education need to be targeted during policy formulation to improve health-seeking behaviour. In addition, health insurance schemes should be extended to cover more of the population in order to improve health-seeking behaviour.

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